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ABSTRACT

A triad of educational information specialists--counselors, librarians, and educational media personnel--play a pivotal role in the acquisition, evaluation, and use of information by students across the educational spectrum. In order to explore how these specialists use information, how collaboration can draw disparate specialization areas together, and how networking between educators and the university can be promoted, the ERIC Counseling and Student Services Clearinghouse hosted a conference at the University of North Carolina at Greensboro. The "Education and Learning in the Information Age" Conference covered the following topics: (1) "Starting an Educational Process We Can't Finish" (B. Dessy); (2) "Responses to Blane Dessy's Keynote Address Setting the Context for Learning in the Information Age" (K. Wright); (3) "Media and Counseling Professionals Use of Technology" (S. T. Gladding); (4) "Running as Fast as We Can Just To Keep from Falling Too Far Behind" (R. Purdom); "Reactions by an Experienced Educator of Librarians" (M. Miller); (5) "Information-Coin of the Realm" (J. N. Lester); (6) "Libraries and Librarianship in the Information Age" (D. J. Hulbert); (7) "Teaching, Learning, Technology and Higher Education" (A. E. Uprichard); and (8) "A Summing Up and a Look to the Future" (G. R. Walz). A list of presenters is included, and ERIC and ERIC/CASS resource lists are appended. (EMK)

ED 420 019

Education and Learning in the Information Age

CHALLENGES & OPPORTUNITIES

Offered in Recognition
of the
Thirtieth Anniversary

of the
Educational Resources
Information Center (ERIC)

and the
ERIC Counseling & Student Services
Clearinghouse

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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G. Wahlz

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

October 16 & 17, 1997
University of North Carolina at Greensboro

ERIC

ERIC Counseling & Student Services Clearinghouse
School of Education, UNC at Greensboro, Greensboro, NC

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Table of Contents

Preface ..... *iii*
David G. Armstrong

Introduction ..... *v*
Garry R. Walz

Biographies of Presenters & Authors ..... *vii*

Chapter One *3*
Starting an Educational Process We Can't Finish
Blane Dessy

Chapter Two *23*
Responses to Blane Dessy's Keynote Address
Setting the Context for Learning in the Information Age
Kieth Wright *25*

Media and Counseling Professionals' Use of Technology
Samuel T. Gladding *35*

Running as Fast as We Can Just to Keep From Falling Too Far Behind
Ray Purdom *41*

Reactions by an Experienced Educator of Librarians
Marilyn Miller *49*

Chapter Three 57
Information—Coin of the Realm
Juliette N. Lester

Chapter Four *73*
Libraries and Librarianship in the Information Age
Doris J. Hulbert

Chapter Five *81*
Teaching, Learning, Technology and Higher Education
A. Edward Uprichard

Chapter Six *89*
A Summing Up and A Look to the Future
Garry R. Walz

Appendix 95
ERIC and ERIC/CASS Resources

Preface

Gnarly complexities of modern life present challenges that require applications of highly particularized knowledge. New initiatives in this technological age have spawned specialties and subspecialties that were unknown a decade or two ago. There is a vexing paradox here. The more our society as a whole needs new information, the greater the tendency for specializations to evolve in isolation from the very people newfound knowledge is supposed to serve. The Balkanization of initiatives associated with technology classically illustrates this trend. Even popular computer journals that are designed for a mass audience feature articles that are jargon-filled collections of opacities to people who are unfamiliar with the new "techno-speak."

While the need for focused inquiry within narrowly-defined technical areas has a demonstrated capacity to generate useful new knowledge, we must find ways to make this information more widely understood and accessible. Absent the binding wire individual parts of an elegant cloisonne vase would fall into a heap of colored shards. A meaningful "whole" requires a bonding mechanism as well as quality parts. It is this cementing, joining force we need as we think about how to tap into technological knowledge and make it part of a complete entity that presents a coherent and valued face to the larger community.

An appreciation for the need to build a grander "whole" from disparate "parts" drove initial discussions that led to the

Education and Learning in the Information Age conference. This thrust is highly consistent with our efforts at the School of Education at The University of North Carolina at Greensboro. We are working to support collaborative initiatives that draw together constituencies including teachers, administrators, librarians, technology specialists, and others with stakes in shaping a future in which technology promises to play an ever-larger part. The open sharing of perspectives by presenters impressed me as did the lively dialogue at the conclusion of each of the sessions. It my hope that these are conversations that have not yet ended.

David G. Armstrong
Dean, School of Education
The University of North Carolina at Greensboro

Introduction

This publication and the conference which preceded it are driven by the basic construct that a triad of educational information specialists—counselors, librarians and educational media personnel—play a pivotal role in the *acquisition, evaluation,* and *use* of information by students across the educational spectrum. Each of the specialties provide vital assistance to students in their information usage. How well these specialties deliver their services is instrumental in determining how well today's students are able to comprehend and creatively utilize the tidal wave of educationally relevant information brought on by the Internet and other information technologies. The ultimate challenge to students of all ages is to acquire the ability to convert the enormous quantities of information into viable knowledge—knowledge crucial to effective life planning and decision making. To do so will require that students be savvy in the use of computers, the Internet, the information superhighway, virtual libraries and interactive multimedia. Students who are savvy will experience a gateway to information riches with the potential to empower them for a lifetime of learning.

Though the concept of the importance of information utilization by the educational information triad is both reasonable and logical, it has, to our knowledge, never previously been emphasized. Yet the need is critical. If learning is to be equally available for *all students* and seamless without unseemly stops and starts and gaping holes, it will clearly require the

best collaborative efforts of the aforementioned specialists. That collaborative efforts to-date are lacking in both a rigorous rationale and imaginative implementation makes the case for "doing it now" all the more imperative. Educators and schools which are lacking in either knowledge of and/or skill in the basics of information *acquisition* and *use* will be of little help to students in the quintessential task of becoming information savvy. Without such savvy, today's youth will become tomorrow's underclass—unable to compete or to contribute to society to the extent they need or desire.

The conference and this publication have the overarching goal of explicating the concept of collaboration among the aforementioned educational specialists. They also focus on promoting networking with UNCG by local and national educators. Further, it is intended that the conference generate ideas and stimulate the development of resources (such as this monograph) which ERIC/CASS disseminates to interested parties throughout the world using ERIC and the National Library of Education.

Hopefully, this publication will stimulate all who read it to consider ways they can contribute to greater acquisitions and use of relevant information and increase their skill in the use of the new information tools which can enhance both student acquisition and critical use of information. We welcome the opportunity to discuss the ideas presented herein with anyone so inclined. Please do so!

Garry R. Walz
Director

Conference Presenters

David G. Armstrong, Dean
School of Education, University of North Carolina at Greensboro

David G. Armstrong has been Dean of the School of Education at the University of North Carolina at Greensboro since February 1, 1997. Prior to that he was Associate Dean at Texas A&M University and Assistant Professor of Education at Western Washington University.

He earned his Political Science Degree from Stanford University and his Education Degree from the University of Montana. He obtained his Doctorate in Curriculum and Instruction from the University of Washington in 1973.

Jeanne C. Bleuer, Associate Director
ERIC Counseling & Student Services Clearinghouse
University of North Carolina at Greensboro

Jeanne C. Bleuer is the Associate Director of the ERIC Clearinghouse on Counseling and Student Services at UNCG. She holds a B.S. in science education and an M.Ed. in guidance and counseling, both from the University of Illinois, and a Ph.D. in educational psychology from the University of Michigan.

In addition to her 15 years experience with the ERIC Clearinghouse, she has extensive experience in both educational research and counseling services at all educational levels and in a variety of settings. Recent professional activities include serving on the Executive Council of the Association for Assessment in Counseling and chairing a research team that received a grant from the Counseling and Human Development Foundation to study counseling outcomes. The grant resulted in the publication of *Integrating Outcome Research into Counseling Practice and Training* (Sexton, Whiston, Bleuer, and Walz).

L. DiAnne Borders, Chair
Counseling and Educational Development, University of North Carolina at Greensboro

L. DiAnne Borders is Professor and Chair of the Department of Counseling and Educational Development at the University of North Carolina at Greensboro. She has conducted extensive research in the area of counseling supervision, is the author of numerous articles and one book in this area, and has conducted counseling supervision training workshops nationally and internationally. She also has conducted several studies of adopted children and their families. Dr. Borders served as the Chair of the Ethics Committee for the American Counseling Association, and served as Editor of ACA's leading publication, the *Journal of Counseling and Development.* She has received several awards for research and writing, and chaired several dissertations that received national awards. Dr. Borders received her Ph.D. in counselor education from the University of Florida, her M.Ed. in counseling from Wake Forest University, and her BA in English from the University of North Carolina at Greensboro. She has been on the faculty at UNCG since 1987.

Blane K. Dessy, Executive Director
National Library of Education, Office of Educational Research and Improvement
U.S. Department of Education, Washington, D.C.

Blane Dessy has served as the Executive Director of the National Library of Education, the world's largest library solely devoted to education, since 1991.

Mr. Dessy has earned a Master of Library Science from the University of Pittsburgh. He has served as library director of several county libraries in Pennsylvania, a library consultant in Oklahoma, a deputy state librarian for library services in Ohio, and as director of a state library agency in Alabama.

Samuel T. Gladding, Director
Counselor Education Program, Wake Forest University

Samuel T. Gladding is Assistant to the President and the Director of the Counselor Education program at Wake Forest University. His academic degrees are from Wake Forest, Yale (M.A.), and the University of North Carolina at Greensboro. (Ph.D.)

Before assuming his current position in 1990, he held academic appointments at the University of Alabama at Birmingham (UAB) and Fairfield University (Connecticut). He was also an instructor of psychology at Rockingham Community College (North Carolina) and Director of Children's Services at the Rockingham County Mental Health Center. He is a licensed professional counselor in North Carolina, a National Certified Counselor (NCC), and a former member of the Alabama Board of Examiners of Counselors.

Gary M. Grandon, Associate Vice Chancellor for
Computing and Information Systems
University of North Carolina at Greensboro

Gary M. Grandon is the Associate Vice Chancellor for Computing and Information Systems at the UNC Greensboro. In this role he is responsible for academic and administrative computing as well as University data and video networks. He is an Associate Professor(adjunct) in the Information Systems and Operations Management of the Bryan School of Business and Economics

He has been at UNC Greensboro since January 1986. Prior to his arrival, he worked at the University of South Florida and the University of Connecticut.

He holds a B.S. in Physics from the University of Michigan, a M.Ed. in Educational Evaluation and Research from Wayne State University, and a Ph.D. in Educational Psychology, Evaluation and

Measurement, from the University of Connecticut.

These days most of his research interests are focused on statistical modeling of refractive eye surgery, with on-going interests in high speed data networks and client server computing.

Doris J. Hulbert, Director
Jackson Library, University of North Carolina at Greensboro

Doris Hulbert has had a 28-year professional career as a librarian that has encompassed "front-line", managerial, and administrative experience in academic libraries. She holds an MA in English and American Literature from Montclair State University and an M.L.S. from Indiana University. Additional graduate work in English and American Literature, Elizabethan Studies at the University of Hawaii and the University of Vermont, combined with additional graduate work in library science at Indiana University rounded out her education.

Mrs. Hulbert has been Head of Circulation and Head Reference Librarian at Indiana University in Bloomington; the Head of Circulation at Morris Library at the University of Delaware, and the Head of the Circulation Department and Associate Director of Jackson Library at the University of North Carolina at Greensboro.

Juliette N. Lester, Executive Director
National Occupational Information Coordinating Committee (NOICC)

Mrs. Lester was the first Principal Deputy Assistant Secretary for Vocational and Adult Education in the U.S. Department of Education and earlier served as the Director of the Education Department's Transition Task Force establishing OVAE. From 1978 to 1980, she was the Regional Commissioner

for Educational Programs for Region V (Chicago) for the former HEW. In 1976, she served as the Director of the Vocational Education Regulations Task Force implementing the new amendments.

She began her government career in 1965 with the then Bureau of Higher Education as a program officer charged with developing Talent Search and Student Financial Aid programs, and later became Director of the Community College Office. Mrs. Lester's undergraduate and graduate study was completed at St. Mary's College, Notre Dame and the Ohio State University. In 1968, she was selected as a Congressional Fellow by the American Political Science Association. She also has held a graduate fellowship in Management at MIT and has completed further graduate work in higher education at the University of Chicago. Earlier, she was a guest scholar in Economic Studies at the Brookings Institute.

Sandy Neerman, Director
Greensboro Public Library

Sandy Neerman is Director of the Greensboro Public Library in Greensboro, North Carolina. She is also Co-Project Director for Community of Leaders, a coalition to promote reading throughout the country. In addition, she is a graduate and alumni of Leadership Greensboro and has chaired Youth Leadership Greensboro and Senior Leadership Greensboro.

Ms. Neerman has received the Chamber of Commerce Cannon Award which is given to a government employee for exemplary leadership and an award from the American Library Association for the Best Library Program in 1991.

William Pfohl, Past President
National Association of School Counselors

Dr. Pfohl is currently Professor of Psychology and Coordinator of the School Psychology training program at Western Kentucky University in Bowling Green , Kentucky, where he has taught since 1979. He was a practitioner for 3 years in New York and 2 years in New Jersey before moving to Kentucky. Dr. Pfohl is a licensed and certified school psychologist in Kentucky and has served NASP as President, Secretary, Publication Committee Chair, and Kentucky Delegate, as well as other NASP positions. He has been president of the Kentucky Association for Psychology in the Schools and president of the School Psychologists of Upstate New York.

He obtained his doctorate from Rutgers University-Graduate School of Applied and Professional Psychology in 1979. He graduated from St. Bonaventure University in New York with a bachelor's and master's degree in 1969 and 1971 respectively. He enjoys jogging, computers, and photography.

Ray C. Purdom, Director
UNCG Teaching & Learning Center

Ray C. Purdom, a Dean's Fellow with the Council of Independent Colleges in Washington, DC, is the first director of the University Teaching and Learning Center at the University of North Carolina at Greensboro. The purpose of the new center is to enhance teaching and learning at UNCG. His vision for the new center is that it be a "strong voice for teaching, faculty development and student learning." His plans for the center include establishing a UTLC Associates program, which would involve faculty who are recognized for their teaching excellence. The associates would direct projects to improve instruction,

curricular matters and technology.

Purdom, a graduate of Duke University, received his Master's degree and doctorate in physics from Purdue University. Now living in Winston-Salem, Dr. Purdom was associated with Kentucky Wesleyan College from 1970-95. He served as dean of the college from 1989-93 and in 1994-95, and as interim president of the college in 1993-94. He also served as interim dean in 1988-89.

Mary L. (Mel) Schumaker, Associate Director
University Teaching & Learning Center

Mel Schumaker is the Associate Director of the Teaching & Learning Center at the University of North Carolina at Greensboro. She has been associated with faculty support services at UNCG for 22 years. Dr. Schumaker obtained her degrees in Communication and Library and Information Studies at UNCG and her doctorate in Educational Leadership/Cultural Foundations as well.

Her profession interests include distance education and technology in instruction and her hobbies include "treasure hunting" for Victorian and art nouveau jewelry.

A. Edward Uprichard, Provost
University of North Carolina at Greensboro

A. Edward Uprichard has been Provost of the University of North Carolina since 1996. Prior to that, he was interim Provost from 1995 to 1996, Dean of the School of Education from 1988 to 1995, and Professor of Mathematics Education in the Department of Curriculum and Instruction. His professional career began in New York in 1964. Dr. Uprichard received his M.S. and Ph.D. in Mathematics Education from Syracuse University.

Garry R. Walz, Director
ERIC Counseling & Student Services Clearinghouse
University of North Carolina at Greensboro

Garry R. Walz, Ph.D., is Director of ERIC/CASS and a Senior Research Scientist at the University of North Carolina at Greensboro. He is a former president of both the American Counseling Association and the Association for Counselor Education and Supervision

He has also chaired the ACA Counseling & Human Development Foundation. Among his many honors and awards are the ACA Wrenn Humanitarian Award, the NCDA Eminent Professional Career Award, and the ACES Award for Innovation and Leadership in Counselor Education. He is a frequent writer on topics relating to career, information utilization, and media and technology. He is also Professor Emeritus, University of Michigan.

Kieth Wright, Chair
Department of Library and Information Studies
University of North Carolina at Greensboro

Kieth Wright has been Chair of the Department of Library and Information Studies at the University of North Carolina at Greensboro since the beginning of 1997, a position he also held from 1980 to 1986. Prior to that, he was the Dean of the Library School at the University of Maryland in College Park and on the faculty of Catholic University in Washington, D.C.

He received degrees from Willamette University in Salem, Oregon, and Union Theological Seminary in New York City. He obtained his doctorate from Columbia University in New York City. He is the author of numerous articles and books on library and information services for persons with disabilities and the use of desktop computers in library settings. He is also a webpage author and editor.

ERIC Counseling & Student Services Clearinghouse

Sara Babcock...User Services Specialist

Jeanne Bleuer...Associate Director

Robert Bohall...Assistant Director for Database Development

Kaye Davis...Assistant Director for Creative Services

Jillian Barr Joncas...Assistant Director for Acquisitions & Outreach

Belinda Madkins...Administrative Assistant

Jay Malone...Editorial Consultant

Meghan McGee...AskERIC Specialist

Star Reedy...Processing Coordinator

Joanna Robinson...Office Assistant

Garry Walz...Director

Sponsoring Organizations

American Counseling Association

American School Counselor Association

Association for Assessment in Counseling

National Association of School Psychologists

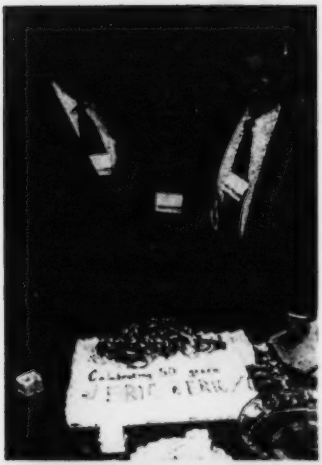
National Board for Certified Counselors

National Career Development Association

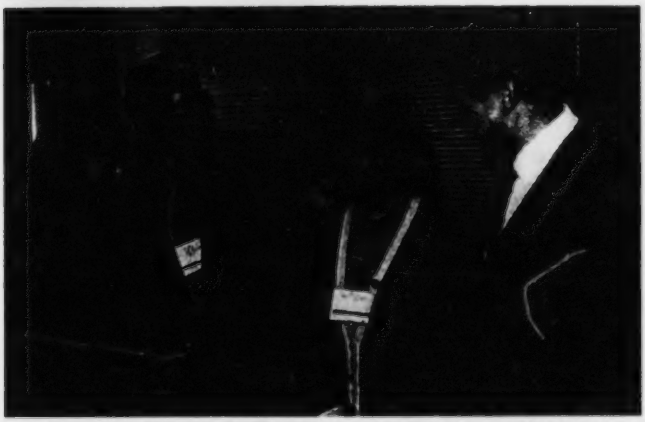
National Library of Education of the Office of Educational Research and Improvement, U.S. Department of Education

National Occupational Information Coordinating Committee

School of Education, UNCG

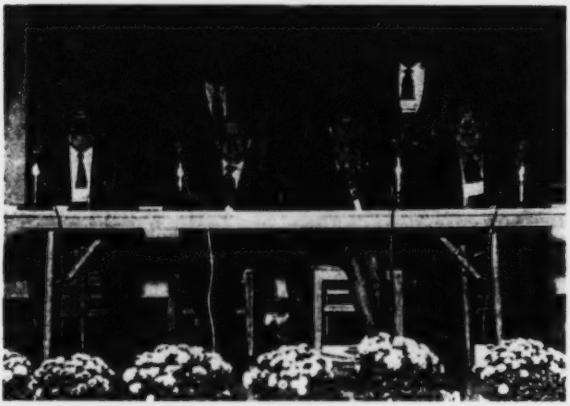


Left to right, Garry Walz, Director, Jeanne Bleuer, Associate Director, ERIC/CASS, and David Armstrong, Dean, School of Education, UNCG admiring ERIC/CASS's thirtieth Anniversary cake.



Left to right: Jeanne Bleuer, Associate Director, ERIC/CASS, Blane Dessy, Director, DOE, National Library of Education, Juliette Lester, Director, NOICC and Garry Walz, Director, ERIC/CASS chatting about the conference.

In celebration of 30 years of ERIC and ERIC/CASS.



Major speakers at the opening session.
Front row: Ray Purdom, UNCG, Sam Gladding, Wake Forest, Sandy Neerman, Greensboro Public Library and Kieth Wright, UNCG.
Back row: David Armstrong, Bland Dessy and Garry Walz.

Keynote Address

Blane Dessy, Executive Director
National Library of Education
Office of
Educational Research and Improvement
U.S. Department of Education

Chapter One

Starting an Educational Process We Can't Finish

Blane Dessy

Thank you, Garry, for your introduction. I am very pleased to be here and I hope that I can contribute to this conference as much as I will learn from it. I was very pleased when I was asked to speak at this conference because, as a librarian, I am very interested in issues that reflect the information age; as an educator and employee of the U.S. Department of Education, I am very interested in challenges that await all of us who care about education in the United States; and as a parent, I am very interested in how the future of education and learning will affect my daughter. It is from these three perspectives that I want to speak tonight and I hope that you will tolerate my mixture of fact and opinion. It's not often that I have an opportunity to speak about issues that concern me professionally and personally, so please indulge me for a few minutes. I had told Garry on an earlier occasion that I always enjoy a speaker who challenges my beliefs and my assumptions, so my hope is that tonight you may find something I say to be provocative or at least worthy of discussion.

I want to thank the ERIC Clearinghouse on Counseling and Student Services for planning this conference in recognition of the thirtieth anniversary of the ERIC program. This particular Clearinghouse has consistently demonstrated leadership in addressing education issues and it has always been a leader in developing new ideas, new services, and new methods of dissemination. It is my hope that over the next two days, everyone here will have an opportunity to become more familiar

with the Clearinghouse and the important work that it does on behalf of all of us here and for educators across the United States.

We are here to discuss a new construct of counselors, librarians, and educational media personnel, all of whom play a pivotal role in the acquisition, evaluation, and use of information by students across the educational spectrum. This conference has the goal of explicating the concept of collaboration among these educational specialists. I want to believe that this type of collaboration can not only provide a better education for our students, but that this cooperation can actually help us to reshape education so that it becomes even more vital.

As a representative of the United States Department of Education, I would be remiss if I didn't bring you greetings from the Secretary of Education and all of us who work in the Department. The Department of Education has a mission that is to ensure access and excellence in education to all. I think that as we discuss the future of education and learning over the next two days, we are directly addressing the mission of the Department. As we share our ideas about the future, are we not asking at the same time how to improve education and how to guarantee that every American has access to a lifetime of learning? I would ask that each of you think about the two issues of access and excellence as we explore the future and that we make sure that whatever future is before us, that it contains the promise of excellence and the certainty of accessibility.

Over the past several months, the Department of Education has been developing a new set of priorities for American education. Each of us in the Department has been asked to consider how our work supports these seven themes and how

we may work to incorporate them into new projects or new thinking about education. The seven priorities are:

1. All students must be reading independently and well by the end of third grade.

2. All students should master challenging mathematics, including the foundations of algebra and geometry, by the end of eighth grade.

3. By 18 years of age, all students should be prepared for and able to afford college.

4. All states and their schools should have challenging and clear standards of achievement and accountability for all children and effective strategies for reaching those standards.

5. A talented, dedicated, and well-prepared teacher should be in every classroom.

6. Every classroom should be connected to the Internet by the year 2000, and all students will be technologically literate.

7. Every school will be strong, safe, drug free, and disciplined.

As you can see, what we are talking about at this conference, the future of education and learning, is in support of these seven priorities. Each of these priorities is future oriented, explicating what needs to occur, what our schools, our teachers, and our students need to be about. Our discussions here about the future of education, our debates about what will constitute

best practice, and our contributions now and in the future will support what the Department hopes will be a national agenda for the improvement of all of America's schools.

I would be angry at myself if I didn't mention at this time the important role that the ERIC system can play in all of this. The ERIC Clearinghouse on Counseling and Student Services is our primary sponsor at this conference and I have continuously been impressed by the work of Gary, Jeanne, and the rest of the staff. Not only do they help us to manage the information in their content area, but the staff here are pioneering in the development of new knowledge. The ERIC system is a great producer of analyses and syntheses and also original thought and it is this kind of knowledge creation that keeps the ERIC system so vital. It is also why an ERIC Clearinghouse is the perfect host for this type of conference. As we talk about the future and speculate about what needs to happen, the ERIC Clearinghouses are creating and disseminating the kind of new information that is so important to our work. If we are to think clearly about the future of education, then we need the best thinking and the best minds. Fortunately for us, many of those minds are hard at work in the ERIC system. Thank you, Garry, and Jeanne, and the rest of the Clearinghouse staff for your vision and dedication to the ERIC program and the future of American education

Trends In Education And Learning

I thought that I would discuss for a few minutes what I think are the major trends in education and learning that will be affecting us for some time to come. None of these may come as a surprise to you, but I want to review them so that we have a context for some discussion.

Growing School Population. According to the second annual back-to-school report prepared by the National Center for Education Statistics, total public and private school enrollment this fall is surpassing last fall's all time high of more than 51 million students. Some 52.2 million students are estimated to be in school right now, with the bulk of the increase at the high school level.

Increases in enrollment will continue unabated for the next decade, probably reaching 54.3 million in the year 2007. According to the NCES report, from the fall of 1997 through 2007, the nation's schools can expect a 13 per cent increase in grades 9 through 12, a 5 per cent increase in grades 6 through 8, and a 1 per cent decrease in grades 1 through 5. Also, in the next ten years, full time college enrollment is expected to increase by 21 per cent. It is estimated that 2 million more teachers will be needed in our schools in the next decade to meet the needs of increased numbers of students. Several factors may be contributing to this enrollment increase: a delay in marriage and child bearing among baby boomers; minorities, especially Hispanics, who have higher birth rates than whites, and are fast becoming the largest segment of the enrollment population, immigration and students staying in school.

I think that what this means is that while we will see more students for the foreseeable future, particularly in high school and college, we will also see larger numbers of students from a much more diverse population with needs and expectations that may be different than we are generally accustomed to. How are we as librarians, counselors, and media specialists to deal with this? From my own experience, it is in the adolescent years that students seems to lose interest in education while pursuing other experiences. And now we are going to be faced with a greater number of students with many different backgrounds. What new practices will we need to deal with

this greater number of students? How will we ensure that they are receiving the instruction and information that they need? Are there new models and curricula being developed now that can help us? How will we ensure that students are receiving the kind of counseling and guidance that is needed when the schools are fuller and the students are ethnically and linguistically diverse? In the Washington, DC area, there are now school districts where over a hundred different languages are spoken and the schools can't handle the rapidly expanding school population. What new programs are being developed in these schools that could help us all prepare for the future of education? How do we as librarians, counselors, and school media specialists deal with students who exist in two worlds—that of the school environment and that of their home where English may not be the primary language and where other cultural values and norms have precedence. What is our role in the acculturation of these students and how do we accomplish that in ways that are sensitive to their native cultures, yet are effective in bringing these students into the mainstream of American education?

Educational Technology. I must confess that I am one of those people who approach technology with fear and suspicion. Before you brand me as a Luddite, as someone who is too old to appreciate the benefits of technology, let me explain myself. Whenever I attend a meeting or read a paper or speak with my colleagues, I am always being reminded that the big change is technology, that nothing is as sweeping a revolution as technology, that technology is the answer if only we knew the right questions, that technology will change education as never before, etc., etc., etc. And I suppose that is all true, but I am awfully confused about hearing the good news—or the bad news depending on your point of view. I am also reminded periodically that no research has linked technology to improved

test scores and that technology has yet to be incorporated successfully into the curriculum, and that while a lot of money is spent on technology, much of it is underutilized and unappreciated. So where does all of this discussion and forecasting leave those of us who are in the trenches as we work with our students? My feelings are this: technology is here and here to stay. I think that librarians and school media specialists have been very successful in the implementation of technology and that counselors can use technology to a great degree in working with students.

The ERIC Clearinghouse on Information and Technology has conducted a trends analysis of educational technology and found several major trends: (1) computers are pervasive in schools and higher education institutions—virtually every student in a formal education setting has access to a computer, (2) networking is one of the fastest growing applications of technology in education, (3) access to television resources in the school is almost universal, (4) advocacy for the use of educational technology has increased among policy groups, (5) educational technology is increasingly available in homes and community settings, (6) new delivery systems for educational technology applications have grown in geometric proportions, (7) there is a new insistence that teachers must become technologically literate, and (8) educational technology is perceived as a major vehicle in the movement toward education reform.

Student centered learning. There has been a lot of writing, thinking, and discussion devoted to the idea of student centered learning. As I reviewed the literature on this topic for this presentation, I was struck by how closely the thinking underlying student centered learning corresponds with the idea behind this conference. We are here to discuss a new way to acquire and to share information; we are interested in bringing

together new ideas and methods for improving education. When I read the literature on student centered learning, I came across a wonderful synthesis written by Susan Land and Michael Hannafin at the University of Georgia. They have written about the assumptions inherent in creating a student centered learning environment and I want to share those assumptions with you and I want to ask you to think about those ideas and the ideas that have brought us together here at this conference.

Instruction, as traditionally defined, is too narrow to support varied ways of promoting learning. Activities must focus on the underlying cognitive processes—not solely products of learning. Knowledge is dynamic and continuously evolving. Individuals must assume a greater responsibility for their own learning. Learners perform best when varied/multiple representations are supported. Learning is best when rooted in relevant contexts. Learning is most relevant when rooted in personal experience. Reality is not absolute, but is a personal by-product of context, interpretation, and negotiation. Understanding requires time. Understanding is best supported when processes are augmented, not supplanted, by technology. Learners make, or can be guided to make, effective choices.

Land and Hannafin conclude by stating we must closely examine our assumptions about our learning environments if we are to make substantive changes in our education models. Simply renaming older instructional methods will no longer be adequate. I think that what we are doing here at this conference is examining some assumptions about what we as librarians, counselors, and educational media specialists do and what we should be doing. If student centered learning is a major trend, then we must start the process of re-examining our assumptions about our roles and responsibilities and we must create a new environment for ourselves and for our students.

Restructured schools. The notion of restructuring schools has

gained tremendous impetus since the 1980s. Much has been written about it and many school districts and several states have entered into the restructuring process in a significant way. When we speak about school restructuring, we are talking about several major issues: revamping organization, management, and administration; developing the professionalism of teachers and administrators; redesigning or updating curriculum and instruction methods; instituting accountability and performance standards; integrating and linking community and social service delivery; developing effective and efficient systems for financing and budgeting education; and upgrading the quality of the educational infrastructure. A simpler way of looking at this is to define restructuring as top down support for bottom up improvements so that everyone is included in the reform process.

While restructuring is a popular and an attractive idea, it has not been as successful in practice. Resistance to change, governance issues, public opinion, and other issues have either slowed the process of restructuring or have stopped it altogether. However, I think that what we are seeing everywhere is a process of change; it may not be the sort of radical reform that inspires writers and policymakers, but it is change and improvement nonetheless. I think that many people are frightened when big change is proposed and that our natural resistance to change comes into play immediately. Maybe we're better off to make some small changes; to create major reform in incremental steps so that we have a quiet revolution rather than a loud revolt. I am always in favor of doing something new and different; I don't know if that means that I am a reformer or that I am someone who just gets bored easily, but I want to suggest to you tonight that we make some small revolutionary plans at this conference. Combining our professions and our ideas and our hopes, we can devise some plans that just might make a

difference in our schools and communities. Have you thought about what you could do to help in the restructuring process—how you could have an effect on curriculum and instruction, on assessment and evaluation, on community and social service integration, on improving your schools generally. If you can imagine what change you could make, what could we do jointly as librarians, counselors, and educational media specialists? Each of us works with many different people every day and think how small changes could become big improvements.

Loss of faith in public education. Is there a more sensitive issue than the perceived loss of faith in American public education? Growing larger as an issue since the 1970s, this perceived loss of belief in the ability of our schools to educate has generated a tremendous amount of heat, but probably very little illumination on the issue of public education versus other options. Issues such as school safety, illegal drug availability, and religious and moral standards are the kind that drive the debate over private versus public education. The 1997 Phi Delta Kappa/Gallup Poll of the Public's Attitudes Toward the Public Schools indicate some interesting results. The public believes that there are three important factors in improved academic results: (1) strong support from parents, (2) the amount of money spent, and (3) the kinds of students in attendance. Let me add some other interesting statistics: While there is an obvious desire for improvement, almost three-fourths (71%) of those surveyed believe that this improvement should come through reforming the existing system rather than through seeking an alternative system. Majorities in all demographic groups believe that the problems faced by the public schools in urban areas are more serious than those affecting nonurban schools. Lack of discipline and inadequate financing are the local school problems most frequently mentioned by the survey respondents. The use of drugs and fighting, violence and gangs

are not far behind. At the same time, however, the public seems more willing than in earlier years to approve government financial support for students who wish to attend nonpublic schools. This continues a trend tracked by these polls for nearly three decades. Included in this issue are the various options that are becoming more commonplace—voucher plans and charter schools, among others. These options are heralded as either the new wave of American education or as a thin veneer being passed off as real reform.

While it seems that there is a great debate about the future of our schools, most Americans continue to express faith in their mission and their achievements.

School facilities—condition of America's Schools. The Nation has invested hundreds of billions of dollars in school infrastructure to create an environment where children can be properly educated and prepared for the future.

The Government Accounting Office has estimated that the Nation's schools need $112 billion to complete all repairs, renovations, and modernization required to restore facilities to good overall condition and to comply with federal mandates. The financial breakdown is as follows: $65 billion for entire building repair or replacement, $36 billion for building repairs, and $11 billion for federal mandates such as asbestos and lead removal and ADA compliance.

Right now there are 80,000 public school buildings in 15,000 school districts and these are attended by approximately 52 million K-12 students. While two-thirds of America's schools are in adequate or better overall condition, about one third of our students attend schools needing extensive repair or replacement.

While some studies cite building age as a major factor contributing to deteriorating conditions, older buildings often have a more sound infrastructure than the newer buildings.

Buildings built in the early years of this century, or before, frequently were built for a life span of 50 to 100 years while more modern buildings, particularly those built after 1970, were designed to have a life span of only 20-30 years.

Declining physical conditions are due to decisions by school districts to defer maintenance and repair, year after year, because of lack of funds. The GAO cited the domino effect due to the lack of adequate funding for building repairs. Deferred maintenance speeds up the deterioration of buildings, and costs escalate accordingly, further eroding the nation's multibillion dollar investment in school facilities. If maintenance continues to be deferred, a large portion of schools that are in only adequate condition and need preventive or corrective maintenance will soon deteriorate to less than adequate condition.

All of us working in schools face the dilemma of a rapidly aging building infrastructure where not only are the physical facilities not adequate, but these buildings are not ready for the future of education with an increased student population and the demands of educational technology. All of us will be challenged to provide education in buildings that may not be up to the challenge of the future.

Challenges to counselors, librarians, and educational media personnel "moving in from the margins." Everyone seems to have their favorite phrase: Shifting the paradigm, pushing the envelope, reinventing government, and there are many others as well. I have my own favorite new expression and it's expressed as "moving in from the margins." I first read this several months ago in an article about social services and I was struck by how well it seemed to capture my feelings as a librarian who is always attempting to convince others of the value of our work and as someone who sees a real need to be proactive and assertive in our thinking and marketing. For me, the phrase "moving in

from the margins" describes exactly what we need to be about and I think that as we discuss our collaboration and our vision for a new type of service that we can begin to make the case for moving in from the margin. Libraries, and I speak from personal experience, are generally not perceived as being central to either a community or a school. While everyone admits that we provide valuable services, few persons consider libraries as part of the instructional mainstream. We are viewed as important supports, but we are not critical to the fundamental mission of the school. I imagine that counselors often feel the same way in that everyone recognizes the good they do, but they're not viewed in the same light as the classroom teacher.

My job, our job, is to change that perception. Our task is to move us in from the margins to the center of the page. Rather than being on the edge, we need to be in the middle. Instead of being seen as support functions, we need to be seen as absolutely critical in the new information age and the age of restructured education. I think that the purpose of this conference is to help us think about how we, in concert with each other, can bring this movement about. I would challenge you to ask yourself these questions. How do I become more central to the life of my school? How do I work with others in this new time to become more of a focal point for better education and learning? How do we change our perceptions about ourselves and how do we persuade others that we can make a significant and a synergistic contribution to our fellow teachers and to our students?

To me, moving in from the margins has a very tangible and a very proactive feel about it. Over the next two days, we will have many opportunities to discuss and to reflect about how to make that movement. Of course, the real challenge will be to sustain that action once we have returned to our own schools and offices.

What are some ways to begin to change our roles? Here are several ideas, none of them particularly novel, but they do have the potential to create change if we are bold enough to try them.

1. Interdisciplinary partnerships and training. Of course, we are all here because we realize the value of interdisciplinary work and we realize that this type of work is the wave of the future. But how many of us have begun to actually work in this fashion? Our work places often mitigate against the kind of creativity that this requires, but we as librarians, counselors, and educational media specialists could begin to craft a new type of interdisciplinary relationship that builds on our service orientations and that utilizes the new technology and the current interest in restructuring to make a real difference in the lives of our students. Training is another important issue that needs to be addressed. I think it's very fortunate that we are here at a university that recognizes what we are all about and that thought that bringing us here was important. It would be an interesting process to see what types of training could be created through the School of Education, the Department of Library and Information Science, and other schools that may have a contribution to make. Here is our opportunity to build the kind of new approach that we have been talking about and we are located at exactly the kind of place that could help us to do that.
2. Service integration. How do we deliver our various services to our clienteles? Where are we located in our facilities and where is the information located? How accessible is our service to students and faculty? I like to imagine a seamless information system that is

broadly and easily accessible throughout the school that would let students and faculty find the information they need when they need it. What kind of new databases need to be developed by us? How successfully are we using the powerful new World Wide Web in bring information resources to our clients? What if we as librarians, counselors, and educational media specialists were to sit down and discuss what type of school information system would be in the best interests of our customers? Imagine students being able to locate global information resources that they could use to help them plan their futures while, at the same time, tapping into myriad other information sources for supplemental information. Imagine also how this would assist the faculty as they try to assist students in gathering information and making life choices. How could we, how should we, begin to bring ourselves closer together for the benefit of our faculty and students? How do we re-envision what we do because of the technological capacity that we are now acquiring? How do we reinvent our services and ourselves?

3. Team models. Everyone, or at least it seems to me, nearly everyone, is working in teams these days. Schools are no different and there are teacher teams for many, many different types of activities. What this conference is calling us to do, I think, is to think about a new type of team that brings together the information professionals to think about new ways to bring information to students and faculty. Rather than thinking of ourselves as librarians, counselors, or educational media specialists, let's think of ourselves, for at least the next two days, as information

professionals who have a common bond in working together. What would this team do? What if your purpose as a member of this team were to re-think information services in your schools? What questions would you ask? What new world would you create for your students? What would you keep? And what would you discard? We are in the information age and we are all information specialists. I remember reading a long time ago that I should never confuse my profession with my function. My profession is librarian; my function is information dissemination. In the same way, all of us here must not confuse our current professions with our real function—the acquisition and dissemination of quality information to our students and faculty. As we think about how a new type of team could function, I would also challenge you to think about a new type of self-image, one that describes us in the information age and that is not reliant upon older ideas of our work.

First Ideas for Next Steps

I always consider the real test of a conference's success to be what happens after the conference. What was taken home; what was tested; what new ideas or approaches were developed? So, in concluding, I would like to throw out some ideas for new work. First, over the next two days, take everything you hear and put it into the context of your own school. What makes sense and what doesn't? What might work and what wouldn't? Start now to reshape your thinking about education and learning and what your role is. All of us are being encouraged to reinvent ourselves on a regular basis and for us here, that starts tonight.

Test your new ideas on your colleagues and friends. I always tell my best professional friends about my new ideas and they are unfailingly candid in telling me what makes sense and what is just too strange to consider further. Follow your ideas; do some research and think about how to pilot them in your school. All success begins slowly, I think, and in small ways. So maybe the first idea to test is that all of us here really do have something in common and over the course of the next two days, you get to test that idea. Leave here on Friday knowing that your interests are the same as others and that if it makes sense here, it may make sense back home.

And, collaborate with others. That's why we're here—to learn and to contribute to the growth of others. Collaborate with the individuals here and collaborate also with the university and its schools. How can we utilize the resources of this university to help us make real change in our own work environments? Create those teams, even if at first you're not sure what may happen. Put your faith in your own ability to create a new type of learning environment. Here are some practical tips to help you get started:

- Find and invest some time, no matter how small an amount, in better understanding your school environment and your co-workers.
- Help your colleagues to understand the need for change and the direction in which education must go.
- Create a sense of urgency.
- Strengthen both interpersonal and organizational trust in your organization.
- Assist others in recognizing that they can be architects of change rather than victims of change.
- Acknowledge that things won't always be completely rational in your organization and accept that.

- And, finally, develop a long-term commitment to organizational change and work steadily toward achieving your goals.

I recently read a wonderful quote from a writer named James Carse who is a professor of Philosophy at New York University. I am paraphrasing, but he writes that real joy can be found in starting something you can't finish. At this conference, we are talking about education, a process that we may help to start in our students, but one which we can't finish. The idea of finding happiness in starting an educational process knowing that we will not see its completion, fills me with a strong sense of joy. I hope that you find that same happiness at this conference. Thank you.

Chapter Two

Response to Blane Dessy's Keynote Address

Setting th Context for Learni ig in the Informat on Age

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Setting the Context

On Friday, August 15, 1997 at the National Archives, the President and First Lady Hillary Rodham Clinton launched the White House Millennium Program—a multi-year national initiative to mark the end of the 20th century and the beginning of the new millennium. The Millennium Program will celebrate the accomplishments of the 20th century, recognize and initiate projects, and engage every sector of society in conveying the American heritage to future generations. In his announcement the President said:

> We find ourselves at the turn of our first millennium as a nation. As the year 2000 draws near, we must ask ourselves, what will it take to meet that challenge, to define that future, to prepare ourselves for a new century and a new millennium? What of our values and heritage will we carry with us? And what gifts shall we give to the future? (ALAWON, 1997)

The Information Age has arrived and with it comes a daily assault of increased information. Society is being held hostage by a battery of information which threatens to exceed our ability to manage it. Information overload costs businesses and individuals valuable time, effort and additional resources... and the cost is rising. Wurman (1989) writes, "a weekday edition of *The New York Times* contains more information than the

average person was likely to come across in a lifetime in seventeenth-century England."

In today's society, the success and survival of many companies and individuals hinges upon their ability to "locate, analyze, and use information skillfully and appropriately." Our proficiency at generating information has exceeded our abilities to find, review and understand it. The problems associated with the explosion of information are exemplified on the "Internet-turned-Information-Superhighway." The volume of information on the Internet has exceeded the ability of most people to find the information they need. The tools to support resource identification and use have not increased in effectiveness as rapidly as the quantity of available information has increased.

The Professions We Represent Here

All of the professional groups—counselors, librarians, media specialists—have to deal with the emerging 21st century information overload and with individuals overcome by that overload. The essential new information skills we identify will need to be incorporated into our professional training programs; the information skills we now teach will have to be modified to deal with an increasing number of information formats; the technological-base of information products will require increased technological skills on the part of faculty, students, and professionals in our disciplines.

In the process of developing new standards for school library media services, the American Association of School Librarians and the Association for Educational Communications and Technology state:

> Today's student lives and learns in a world that has been radically altered by the ready availability of vast stores of information in a variety of

> formats. Innovations in traditional printing techniques have joined with advances in electronic technologies to transform the ways we seek and gain information. Students now routinely encounter information in formats as simple as the picture book, as complex as the multimedia package, and as diverse as the literary classic and the personal homepage. The information explosion has provided countless opportunities for students and has dramatically altered the knowledge and abilities they will need to live productively in the twenty-first century. Students must become skillful consumers and producers of information in a range of sources and formats to thrive personally and economically in the communication age. Library media programs must be dynamic, enthusiastic, and student centered to help ensure that all students achieve this status. (AASL, 1996)

Probably every national professional association involved in education at any level—public or private—has similar statements and has developed preservice and inservice educational/training guidelines for their particular professional group. New information technology delivery systems demand new forms of professional activity and new forms of training.

Some Reactions to "Education and Learning in the Information Age" by Blane Dessy

(1) We are all engaged in a "Red Queen's Race" from *Alice in Wonderland* in which we have run as fast as we can just to keep from falling too far behind.

The growth of communications technologies, including the Internet, makes preservice and inservice professional education very difficult. No educational institution can keep up with the demands for new technologies so that we can access new information sources. Funding for K-12 schools access to information sources will not be solved by "Net-day" activities. The most critical need is finding TIME for teachers and students to "play with" and develop critical information handling skills:

(a) How to acquire information in a variety of formats, not missing critical information links.

(b) How to critically evaluate information sources for accuracy, value, and utility and filter out what is simply "noise."

(c) How to produce information format packages which are useful in instruction.

(d) How to communicate information in writing, electronic formats, and speech effectively.

All of these factors point toward different styles of teaching/learning at all levels. Such styles will require that teachers and learners take the time to develop information assessment skills, and receive rewards for taking that time. Lifelong learning will involve the acquisition of such skills over and over again.

(2) What particular set of skills are we targeting in our professional education programs?

Graduate education programs for educational professionals always face the demand of meeting current field demands: "Please see that your graduates have these specific skills based on this particular technology and our current assessment of client needs," is a typical request which is received. Such programs also face the demand for determining and training to meet future demands: "We want people who are problem solvers and can adjust to rapid change involving technologies we have not yet invented."

Stakeholders in this process include schools, universities,

and graduate students. No one wants to be educated to do a job that may not exist. Equally, no one wants to be educated for a job that will soon cease to exist! As we design educational programs in cooperation with the schools and the educational establishment, we must constantly try to balance current needs and future demands in ways that allow students to develop the capacity to function professionally and change dynamically as the future demands.

(3) Why do we train in isolation?

As graduate professional education developed and state and national certification processes emerged, the trend toward specific professional education requirements grew. More and more educational professionals are training in isolation from one another.

At the graduate level, the students take almost no courses or practice together. While understandable, this trend is unfortunate.

In the school setting, a group of professionals have characteristics in common:

(a) They work with all of the students in the schools.

(b) They do not give grades.

(c) They all have graduate level education.

These professionals include: the principal, the guidance counselor, the library media specialist. Often these persons are on the leadership team of the school.

It would seem like a good idea to consider what would happen if we defined a core of graduate experiences for these preservice students to share in common. Common educational and clinical experiences have the advantage of allowing people to know one another's styles, roles, and responsibilities prior to working in a professional context. The principal would know what guidance counselors and library media specialists do, the guidance counselor would know the problems faced by the local

school administrator, and the library media specialist would understand the roles of the other two professionals.

If we have preservice training in common, it might also be good to devise professional placement opportunities in which those who are trained together can move into the working school setting as a "team." Such teams have already been proposed to solve problems in "low performing schools" here in North Carolina. But team members are often made up of professional who have not worked or trained together. Imagine the impact of a team of professionals who have studied together, taken tests together, worked in practice together, and now come to a school setting as an organized, knowledgeable team.

(4) Can we avoid being marginalized?

Our speaker used the phrase, "moving in from the margins." Clearly there are forces at work which can marginalize the whole formal educational process. Voices are heard in the communications, business, and political fields saying... anyone can teach, anyone can counsel, anyone can find, organize, and disseminate information or... let the students learn from life... or give academic credit for life experiences or... anyone the student meets is the teacher or... we have to allow parents to have funds to choose educational programs or develop their own.

To avoid being "benched," our professions and professional training programs must be very clear about what they have to offer the educational process beyond meeting regional accreditation standards. We need to be able to clearly state what we do that makes a difference in the lives of students, in the quality of the school community life, and in the context of the future of our world. Specific professional association groups must stop talking to themselves, and address those who use their services—communities, other professionals, students, parents, and legislators. Invalid, unsupported criticism of the

whole educational enterprise must be met with professional responses that make sense in the competitive marketplace of the information age.

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Media and Counseling Professionals' Use of Technology: A Reaction

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I applaud ERIC/CASS for sponsoring a conference on how librarians/media specialists and counselors can collaboratively use technology. On a personal level, I am married to a former middle school librarian. We have collaborated over the past 12 years and produced one article and three children. Writing the article together was much more difficult in some ways than our cooperative effort in bringing our children into existence. Nevertheless, we will work on future writing projects together and it is this aspect of professional togetherness that I would like to address in my reaction remarks.

First, I think *technology makes it possible and probable that media specialists and counselors can share unique skills common to their disciplines and work more together for the good of both.* For instance, I did a workshop last summer for the media specialists in our library on teamwork, a specialized domain of counseling. Human relations skills prevalent in teamwork were brought to life and to the lives of media specialists through using technology. My knowledge on the subject was specific and before had been confined to the lives of counselors. However, the professionals I taught wanted to utilize these skills beyond a counseling framework. Their intent and ultimately mine was learning how they could improve what they do better by working in teams. Since the workshop, I have had feedback from these media specialists that teams work within a library setting quite well. As one of them told me recently: "Teamwork is not just for counselors anymore."

Besides bringing media specialists and counselors together for cooperative and integrated learning experiences from one specialty to another, *technology enables professionals to find ways of working that transcend disciplines and yet can be shared.* Both media specialists and counselors need to know about some subjects in depth. As an old miner once told a novice: "You may dig anywhere on the surface and sometimes find a gem. However, it is through digging deeply that you'll most likely strike gold." We who are helpers through media and counseling can use technology like a shovel to uncover information crucial to our surviving and thriving. In the depth of obtaining deep knowledge, there is a reward that occurs on multiple levels. Most pertinent to the discussion here is that processes common to "learning about" transcend professional domains. Thus, while the depth and use of information in these media and counseling may differ, the process by which learning occurs is transferable thanks to technology. For instance, I have picked up many computer skills through downloading programs media specialists have posted on the Wake Forest web site. I am learning how to learn better and find information I need because of processes taught to me both directly and indirectly by those in another related profession.

A third way technology unites us is through the way it frees media and counseling specialists to work across boundaries and borders. For instance, in the presentation I did last summer on teamwork I used an IBM 380 Thinkpad. It was powerful enough to enable me to collect data from all over the world and prepare a PowerPoint presentation. Thus, I dipped into knowledge beyond books and periodicals housed in my university library. I also was able to pick up data from England, Germany, Japan, and Australia by using the Internet and e-mail. Cultural differences lose much of their potency when you go "on line." Technology has a way of highlighting what is useful and pertinent. The

technology I employed can also be used by media specialists in keeping up and learning about new ways of working in their profession. Through technology those of us in media and in counseling can become better connected with our constituents regardless of where they may be located geographically.

Finally, technology enables both media and counseling specialists to work at a pace and way that is most comfortable and conducive in obtaining data that meets their needs. In this statement I mean that while some of us in our respective professions are marathon runners, others of us are sprinters. Technology allows us to work for long hours, short periods, or time in between. We are freed through technology to become more humane in our relationships to others who have much to teach us. We can adjust educational input from varied sources to our best style of learning, rather than having to alter our style of learning to the way materials are being presented. Therefore, through visual, audio, and kinetic means we set up ways that help us in digesting and utilizing knowledge. For instance, I can now communicate with a media specialist through exploring and responding to part or all of what she may send me. The dialogue can continue as long as we both agree to keep talking through various technological means.

In conclusion, I would simply say that technology is the link that provides a bridge for media and counseling specialists to engage in conversations at deeper and more meaningful ways than would otherwise be possible. In both professions we find people who are interested in learning and in helping. These are people—and knowledge—based disciplines. We want our clients to get the right pieces of information or the proper skills for their lives. Thus, we often consult with experts we think can help us in being of assistance in doing our jobs to the fullest. The "experts" we consult should include each other. Technology is a way to make that consultation happen. It includes not

only a conveying of information but a joining of professions in regard to resources and talents. I think that through the technical tools available now and those that will evolve, we will see media and counseling specialists come closer together more often for their own good and for the good of others. This type of evolution can lead to a quiet revolution that includes four components: sharing knowledge, learning processes, breaking down barriers, and freeing us all to be more humane in our dealings with ourselves and others. Who could ask for more?

Running as Fast as We Can Just to Keep From Falling Too Far Behind

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Introd uction

My comments come fr m the perspective of someone working with faculty who are implementing change. They are faculty members who are inter sted in enhancing their teaching and their students' learning. Many of these faculty members are, as part of this process, inc orporating technology into their teaching. I interact with uni ersity faculty, but I think many of the same issues and interes s exist with instructors teaching in K-12.

High Level of F aculty Interest in Teaching and Learning Issues

In recent years, faculty h ave shown a renewed interest in issues related to improving teaching and learning, and, in particular, in using instructio al and informational technology. Faculty are coming to the U niversity Teaching and Learning Center full of ideas instead of our going out as missionaries for the improvement of teaching

This has occurred for va rious reasons. Faculty are

(1) aware of the re ources available through new technology and th e power of this technology;

(2) convinced that stu dent learning and their teaching can be improved;

(3) fascinated by the new technology and finding this kind of teaching and learning exciting and fun, and
(4) knowledgeable about the use of technology outside of academia.

Instructional Technology Supports Good Practice in Teaching

Most of us have gone through many technology revolutions, all of which were supposed to dramatically change teaching and learning—television, VCRs, computer assisted instruction, and so on. In general, these innovations have fallen short of expectations. However, I think this present revolution is going to have a significant and lasting impact. The principle reason being that the current new technology supports what we know is good practice in teaching and learning. The new technology can:

- improve student-teacher interactions,
- provide more extensive student-student interactions,
- promote a shift to active learning or student centered learning, and
- address diverse learning styles.

Challenges Facing Faculty

Even those faculty members who have embraced the new instructional technology have many concerns about incorporating the technology into their teaching.

Things are changing so fast

Time is a faculty member's most valuable commodity. It seems that by the time a faculty member has learned a new

technology the technology is outdated. As an example, consider what has happened with one of the most common uses of computers, word processing. In my academic career, I have gone from using basic line editors, to WordStar, to WordPerfect, to WordPerfect for Windows, and now to Microsoft Word. In addition, these software packages have gone through an uncountable number of updates. The same thing is true with search engines for library and web information. The same thing is true for spreadsheets, databases, and statistical packages. It is a full-time job just keeping up with basic software and now faculty are expected to know web page authoring, HTML, Java, cgi, etc. Also, faculty are asked to learn how to moderate e-mail discussion groups, how to teach their students to use such resources, etc. It has been estimated that it takes 10 times as much time to prepare a Web-based course compared to a traditional format course, and any degree of technology enhancement takes an extra-ordinary commitment from faculty.

Faculty are taking risks

Incorporating technology into courses, teaching in more active mode, changing from a comfortable teaching style, all require significant risks by faculty. Teaching environments need to be made as safe and comfortable as possible. This demands the university to support of faculty in the use of hardware and software, and to provide curriculum development assistance at a level that the university is not always able to provide.

Faculty need support in this effort

A teaching and learning center such as ours tries to help faculty improve their teaching and courses using principles

based upon sound concepts of teaching and learning. We try to encourage faculty to look at how instructional technology can enhance these efforts. We offer assistance in the production of media. We provide media and appropriate equipment. We attempt to address classroom issues. We provide student assistance, equipment grants, faculty development grants, and consultation.

A model of curriculum development that has been proposed is one where faculty can send their syllabus to a center like ours and then receive back in a few weeks an enhanced course complete with embedded technology. It is sort of like sending your film to a film processor and getting back the next day twenty-four 4x6 double prints, or sending your son or daughter off to college and getting back in four years an educated, mature adult. This may be the dreamed for course and faculty development center, but it goes against our concept of empowering a faculty member to take responsibility for their own professional and curricular improvement. We want to empower faculty to be self-developers just as faculty want to empower students to take responsibility for their learning and become self-learners.

We envision the function of a teaching and learning center is to provide the services of a personal faculty development trainer, a training team. This team can furnish a complete range of services making it possible for a faculty member to undertake a personal or course improvement project. We can help the faculty member obtain additional skills, we can help in the development of media, we can design the ideal learning environment, and we can provide the training in use of technology. We can offer the faculty member a full-service faculty development center, but the faculty member must assume responsibility for the project.

The faculty reward system must recognize faculty efforts to improve teaching and learning.

Faculty are not going to be willing to commit the time required to incorporate technology if the promotion and tenure system does not reward such efforts, and recognizes to a greater extent research and other service to the university.

Ken Green in his annual survey of instructional technology on college and university campuses said that the instructional technology support centers and mini-grant programs operating at many institutions are useful. However, Ken Green notes "But faculty monitor the experience of their colleagues. Failing to reward and promote the instructors who invest significant time and effort to bringing technology into their teaching and syllabus sends a chilling message about the institutional commitment to instructional technology integration in instruction and scholarship."

Technology as a Transforming Agent

Technology is transforming higher education. Some of this transformation is planned andsome of it just happening.

Technology is:

- improving communication,
- allowing more collaboration,
- providing access to knowledge, and
- moving education from a teaching to a learning model.

Gerald Van Dusen in his new book, *The Virtual Campus*, states that higher education has always been seen as curator, creator and critic of the basic knowledge of our world. This basic knowledge is being drastically affected by its rapid transfer through the new electronic channels. *The traditional world of*

higher education must either embrace this new virtual world or become less relevant in its value to society.

I feel that higher education is embracing technology and embracing it with unbelievable speed. This rapid transformation is challenging all of us to run faster, rethink old ideas, and become learners at the novice level again. We are in the era where continual learning is a necessity for both the student and the educator.

Reactions by an Experienced Educator of Librarians

Marilyn Miller

I appreciate the opportunit / to respond to Blane Dessy's cogent remarks. I enjoyed the luxury of reading Blane's comments slowly and having the ime to linger on points with which I especially agreed, noting p oints I wished to extend with some thoughts of my own, an l identifying an important omission that I want to address. If I had had the great, good fortune to participate in the conf rence as originally planned, I would have shared the following observations.

Blane carefully identifies s me of the major issues facing public education. While the nee for buildings and facilities is overwhelming, personnel need may be the greater crisis. Retaining teachers and specialized personnel in today's booming global economy and plethora of ocial and human problems is becoming difficult. Young t achers have many other opportunities in a variety of occ pations, and huge numbers of our teachers are looking towar retirement at the turn of the century. An increasingly conte tious society that does not tolerate adequate salaries for pro ssionally qualified educators in the K-12 system, coupled wi h the challenges of diversity, and student behavior, are makin inroads into our supply and future supply of teachers. Add to this the fact that dealing with the changes demanded by the burgeoning information technologies is awesome. It may e that this shortage of teachers

may require those who specialize in the information and educational technologies to use their skills and abilities to play a more central role in educational change than has ever before been proposed. Let us not forget either that, as librarians of all types are pushed further and further into the business of managing, in effect, two information systems, print and electronic, side by side, the financial pressures increase exponentially for information resources, quantities and diversity of staff, and adequate salaries.

I was especially interested in Blane's report on the trends analysis conducted by the ERIC Clearinghouse on Information and Technology. My research with Dr. Marilyn L. Shontz of UNCG's Department of Library and Information Studies, begun in 1983, supports many of the trends in the ERIC analysis. According to our research: 1) Television resources, particularly video, has overtaken and surpassed the use of all other audiovisual resources; and 2) computers are pervasive, especially in the technologically "have" schools. Our research describes a great dichotomy growing between the "haves" and the "have not" schools in their funding for and access to information technologies, a trend that should provide much concern about the equity of access and opportunity for all students. For instance, sixty percent of the respondents to our national survey report access to a local area network, the Internet, e-mail and telecommunications, and fax machines. Fifty percent report access to the Web and 84 percent report use of CD-ROM searching. One of the ironies that I report wherever I can is that hundreds of school library media specialists with computers and modems serving students and teachers still report that they do not have a phone for voice communication in the media center. When we dig further into the data, we find that funding for modernizing information access in large numbers of our schools does not exist.

Another fact, always worrisome for those of us who believe we are far yet from the day that books can be discarded as viable information tools, is that our studies show that less money now is spent on print resources than nonprint resources. Empirical data indicate that books and reading become less important to K-12 students from grades 3-5 on. So, yes, Blane is undoubtedly correct when he notes that technology is here to stay; but the lack of supportive research on computers and learning, the growing disinterest in reading on the part of the young, and the need to constantly train and retrain ourselves and teachers in new techniques, new equipment, and new software are problems that are attackable only cooperatively.

I was particularly struck by Blane's discussion of Student-Centered Learning. For the past five years I have worked with the Standards and Guidelines Development Committee of the American Association of School Librarians. Called the Vision Committee, this group has produced a document for school library service that will direct school media specialists to move away from how they do their library work well towards the identification of what it takes from them and their programs and services to help assure student learning. In making this shift, it is obvious that school library media specialists will have to become more proficient at collaboration and better educated regarding the role of student-centered learning. They will have to become activists in the integration of information skills into the curriculum.

From Chapter One: "Collaboration, leadership, and technology are integral to every aspect of the library media program and every component of the library media specialist's role. They furnish theoretical and practical grounding both for the program and for all the activities of the library media specialist—serving as an instructional partner in learning and teaching, providing information access and delivery, and

administering and managing the program. They suggest the framework that surrounds and supports the authentic student learning that is the goal of the successful, student-centered library media program." Partnerships, collaboration, moving away from "I" to "we" means that we must work towards understanding the unique and special role each has, and, using all of our strengths, weaknesses, and potential, focusing on student centered learning.

I would like for Blane to have had time to broaden his portrait a little to include the lifelong learner, thus bringing in the unique role of the public librarian. Although all librarians, when one digs down to the basics, are generic, they also have brand characteristics. The public librarian serves the entire community beginning with the unborn babe whose mother comes for information on prenatal care to the retiree who is a specialist or serendipitist.

The public library serves each level of formal student from kindergarten through graduate school in very specific ways. And in today's world the young student faces a lifetime of retooling and retraining. The signs are clear that many of the younger generations are not only to be lifelong learners but lifelong students. Technology provides public, social, and educational agencies new ways and opportunities to collaborate so that students of any age with any goal can be empowered to learn. Stretched financial resources demand that we find better ways to collaborate by sharing information and developing new databases and knowledge.

Universities should lead. Through research, reflection, and observation of current practice, academic faculties have a responsibility to help breach the problems that have developed because so much teaching today involves time on task performed in isolation. All educators of the young should learn in their preparatory programs how to work in teams and how

to develop and use resources in cooperation with other types of information specialists, and I include guidance counselors as information specialists.

I like Blane's "Moving in from the Margins" especially since I always have to stop and think about how to spell paradigm.

Our work as counselors and librarians is not marginal. We theroretically have an impact on the entire school community. Blane is correct: pooling our information, sharing our strengths, and collaborating wherever possible will help us all move in from the margin.

Chapter Three

Information: Coin of the Realm

Juliette N. Lester
Executive Director
National Occupational Information Coordinating Committee (NOICC)

I would like to thank Garry Walz for inviting me to participate in this very special 30th anniversary celebration of the ERIC Clearinghouse on Counseling and Student Services. It is striking to think back over these 30 years and consider the changes that have occurred in library science, information technology, and educational media. In the 1960s, teachers were typing materials on ditto masters and mimeograph stencils, using manual or electric typewriters. (As a high school history teacher, I remember it well.) In most libraries, catalogs consisted of cards. Media collections relied primarily on phonograph records and reel-to-reel tapes, slides, film strips and heavy metal tins of 16-millimeter film. Savvy librarians and teachers kept a private supply of projector bulbs, extension cords, and ditto fluid on hand. In many schools and libraries, I suspect they still do.

Today's technology permits us to have computerized catalogs and ready access to distant libraries' collections and databases. Using the Internet, we can retrieve information and material in multimedia formats, and we can talk with colleagues via e-mail in far away cities and countries. In the 1960s, ERIC was an ambitious and innovative step in the conservation and dissemination of educational research and information. Today's technology inspires the vision of an even more extensive, comprehensive, and widely accessible National Library of Education, in which ERIC/CASS will be one of many partners

and links in a network of l
and real. Its mission, like libraries—private and public, virtual
ensuring the widest poss ours, emphasizes the importance of
Americans, whether or no sible access to its resources for all

What a difference th t they are wired to the Internet.
who work in education and ese decades have made for all of us
to a revolution that is likel d counseling. We are indeed witnesses
effects on all aspects of o ly to have profound and far-reaching
gather and disseminate i our lives. It is changing the way we
communicate with others nformation, as well as the way we
way we work, the way we around the globe. It is changing the

Like any revolution, learn, and the way we teach.
social, economic, and polit it is generating a certain amount of
businesses are becoming ical turbulence and dislocation. Some
Workers, not just in the U obsolete; new ones are emerging.
as well, have experienced United States but in other countries
jobs disappear and others upheavals in the workplace, as some
Double-digit unemployme s require new skills and knowledge.
political and economic cha nt is widespread in Europe. Dramatic
there and elsewhere t anges have prompted many countries
preparation and labor m focus on improving workforce
economic growth. In rec market information to encourage
been invited to provide te ent years, for example, NOICC has
countries as diverse as J chnical assistance to organizations in
Hungary, and Bosnia. Lapan, Turkey, and Poland, Canada,
included officials from N ast month's visitors to our office

Reflecting these cha w Zealand and South Africa.
and counselors, ERIC/CA nges and their impact on educators
Career Transitions in Turbo S published a book last year entitled
the agenda of the Inter *ulent Times*. Similar concerns are on
and Vocational Guidance ational Association for Educational
theme is "Dark and Light Conference in Finland in 1998. Its
Among the topics are C Counsellors for Uncertain Times."
ounselling in Turbulent Changing

Society - the Russian Perspective, Managing Change (Finland), Counseling in Uncertainty (USA), and Virtual School - Virtual Reality.

It can be very exciting, if a bit daunting, to be a librarian, a media specialist, or a counselor in the midst of this revolution. Granted that keeping up with information technology, new media, and the resulting explosion of information can have a dizzying effect, producing job stress and insecurity—headaches and butterflies in the stomach. Perhaps the German metaphor is more apt: *Flugzeug im Bauch*—"airplanes in the stomach."

As a manager I have seen my work and my staff's work transformed by new generations of technology. We have moved from the typewriter to the word processor to the computer, from DOS operating systems to Windows 95, from individual PC's to LAN's and the Internet, with all the accompanying versions of hardware and software, user manuals and training programs, technical terms and acronyms. Keeping up with these changes can be exhausting, frustrating, and expensive. But they are also wonderfully liberating and exhilarating. With your professional skills, you are well placed to help people survive and prevail over the tumult. But more on that later.

My assigned topic for today is "Information: Coin of the Realm," a neatly coined phrase that affords the speaker a certain amount of wiggle room. I approached it gingerly, wondering all the while, if information is indeed our common currency, how do we judge its worth? In an age when more and more information is more and more accessible, how do we know if the coin at hand is 14-karat or fool's gold? In the glittering, glowing screens of cyberspace, what realms are we talking about: local or global, virtual or real? And how can we ensure that everyone gets a fair share of the coins?

If demand is any indicator, then I can safely say that job, career, and labor market information is a valued global currency,

though it comes in many denominations. Here in the United States, it is indeed the coin of the realm. Business planners and policymakers depend on economic and labor market statistics in making short-term and long-range plans. Educators use such data for program planning and evaluation. Workers and students need occupational and career information for making sensible decisions about their educational and employment opportunities.

The interest in this information is widespread, as currently illustrated on the World Wide Web. Sites offering job search and career assistance have mushroomed and are counted in hundreds, if not thousands, by now. America's Job Bank, maintained by the U.S. Department of Labor, is among the most popular sites on the Web. It reported some 30 million hits in the month of June. High school students and their parents are flocking to the Web for information on colleges, admission tests, scholarships, and financial aid. Home pages offering data for economists, investors, and businesses have increased dramatically.

I think this rush to cyberspace is just one reflection of the electronic revolution. In an age of jet planes, cell phones, and notebook computers, many traditional offices have been abandoned for a floating workspace that moves from the family den to the car, from the office to the airport terminal, from the taxicab to the hotel lobby. The realms where many workers earn their coins are temporary; the line between home and work blurs, and the only constant reality may be virtual. The corporate image for the 1990s is a jet-stream-bicycle messenger in a business suit, with an IBM ThinkPad on the handlebars. *Flugzeug im Bauch.*

In a thoughtful essay in *The American Scholar*, historian Gertrude Himmelfarb (1997) discusses the import of the electronic revolution in the library. She commends the

democratization of "access to knowledge" made possible by computerization and the Internet, but she warns that "in cyberspace, every source seems as authoritative as every other. . . . The search for a name or phrase . . . will produce a comic strip or advertising slogan as readily as a quotation from the Bible or Shakespeare . . . all sources, all ideas, all theories seem equally valid and pertinent." Himmelfarb is not alone in warning that it takes a discriminating mind to distinguish between the trivial and the important, the true and the false.

James Sampson(1997), at the Center for the Study of Technology in Counseling and Career Development at Florida State University, and others have also cautioned that the Internet offers users an overabundance of data, as much of a problem as a scarcity of information. NOICC and the State Occupational Information Coordinating Committees (SOICCs) were created to address the lack of occupational and career information. Now we must consider the problems users face in being inundated with material. As Sampson notes, "Individuals who are overwhelmed with data sources can easily become discouraged when the data they locate does not apply to their specific problem or decision."

The point I want to underscore is that information technology now enables us to generate information overload, in which all information is not created equal or equally valuable. This has implications for the NOICC/SOICC Network, as well as for counselors, teachers, librarians and others who work with career information and development. First, we must promote widespread and equal access to the wealth of information our world has to offer. Second, we must teach our citizens to be sophisticated information consumers. We can help them learn how to search out, select, and sort information and assess its worth. We can provide tools and aids for the winnowing and selection process. ERIC has done this for years with its digests.

Ultimately, however, it is the individual who must determine whether the coin at hand is genuine or counterfeit, shaky or sound.

To some extent, that is why NOICC and the network of SOICCs were created some 20 years ago. At that time, state and federal agencies were producing a wealth of data on education, occupations, and the labor market—statistics that could help education planners make knowledgeable decisions about what vocational courses or training programs to offer—data that could help individuals make better personal decisions about what courses to study and what career fields to pursue. Diverse data existed, but no one was responsible for locating the sources and identifying the pieces that could be used to support career decision making and educational program planning. Furthermore, there was no network focused on turning the data into useful occupational information for labor market intermediaries, counselors, and educators and helping them understand and use it.

In some respects, the NOICC/SOICC Network's mission is very similar to the mission of the new National Library of Education. We also strive to:

- **increase public awareness** of existing occupational and career information resources;
- **expand public access** to this information by delivering it in user-friendly formats tailored to diverse groups, using appropriate technology; and
- **assist users** in understanding and applying the information.

We know that the best information is useless if the people who need it don't understand how to use it. Therefore, we place great emphasis on providing training programs and supporting materials for educators and workforce professionals —the administrators, counselors, teachers, career development

facilitators, librarians, and employment specialists who can use our information systems and products to plan programs or to help students and workers with the decision-making process. We provide tools and training programs that professionals can use to train other professionals or to help clients with their own decision making.

One of our Network's first tasks was to review dozens of federal and state programs collecting data relevant to our twin concerns of occupational and career information. This year, the Office of Management and Budget posted a page on the World Wide Web that offers hotlinks to data sources in 70 different government agencies that have statistics on everything from agriculture to the weather. But in 1979, neither that resource nor the technology to support it was available.

Other early tasks for our Network included assessments of specific users' needs for information and the development of technical tools, or crosswalks, that would allow us to use data from different sources using different classifications. These were critical steps in designing information systems for specific user groups.

NOICC's landmark *Occupational Information System Handbook*, published in January 1981, was the first resource to identify pertinent data sources and to provide technical assistance to states in their use. It was developed right here in North Carolina, under a grant to the North Carolina SOICC working with the Research Triangle Institute and other partners.

The *OIS Handbook* offered help to SOICCs designing practical occupational information systems to support program planning in vocational education and training. Early systems in some states were modified and enhanced for use in other states. Then, with the introduction of micro-computers, our Network developed software for a prototype occupational information system, incorporating features from several

successful state models. State-specific, computerized systems are now available in most states, and some are now using the Internet to deliver the information or to provide regular updates.

Taking advantage of increasingly sophisticated computer capabilities, NOICC redesigned and enhanced its prototype OIS. An important part of that initiative was the development of an occupational and labor market database. It has now become a part of America's Labor Market Information System, a new national database maintained by the Labor Department. NOICC also is assisting the Labor Department in its effort to create a central Internet source of information on education and training programs available across the nation. It will provide a central marketplace serving employers, education and training program providers, and others.

When NOICC was organized, only a couple of states were piloting computerized career information delivery systems (or CIDS). These early models were based on mainframe computers and used needlesort cards, microfiche, printouts, and publications to help users assess their interests and find occupations to explore. Over the years, NOICC and the SOICCs have worked with public agencies, professional groups, and private vendors to help more states implement comprehensive systems.

Together we developed standards for the delivery of career information and for the presentation of career information in video format. NOICC supported technical workshops and training for CIDS staff and provided incentive funds for system enhancements. SOICC and CIDS staff have also supported the development of user-friendly features, corollary materials, and user training.

Today CIDS operate in almost every state, at 20,000 sites nationwide. A few are offering some of their resources on the Internet. But this is still uncharted territory, involving many

complex issues, such as copyright
systems and financing of expensive protection for proprietary
and training efforts. lata preparation, updating,

One of the challenges for us
career information and even caree now is the proliferation of
Today, more than ever, users need r counseling on the Web.
worth of these sites, to determine to know how to judge the
sound. Counselors and librarians c which ones are reliable and

Early on, NOICC recognized an help them.
than information for making soun hat individuals need more
need career development skill career decisions; they also
development programs in our sch s. We knew that career
important in preparing our child ools would be increasingly
1986, we launched a major natio n for the future. Thus, in
the counseling profession to nal/state collaboration with
competencies for strengthenir develop guidelines and
development programs. g comprehensive career

The guidelines provided a fran
jargon, a template) states could use ework (in today's computer
into the schools' curricula. To to build career development
Development Guidelines have be day, the National Career
states. In Arizona, for example, t n adopted in more than 40
into the Tucson Comprehensive C ey have been transformed
model, a thoughtful and imagina mpetency-Based Guidance
workbooks and ideas for counselc ive package, complete with
grades 6-12. In addition to these w rs working with students in
includes a special Internet guide orkbooks, the Tucson model
Information Highway. Other coun for Cruising the Counselor
and Japan, have also become inte ries, like Argentina, Canada,

The competencies in the ested in the Guidelines.
knowledge, educational and occ uidelines (related to self-
career planning) have been inc upational exploration, and
information delivery systems. The rporated into state career
y also provided the basis for

three personal career planning portfolios: the *Get a Life Portfolio* for students; the *Life Work Portfolio*, which is used with our *Workforce in Transition* curriculum for adults; and the *Tech Prep Planner*, specifically designed for participants in school-to-work transition programs and tech prep. Counselors can use these portfolios to guide individuals through the career development process and document their progress. All of these resources, I should note, are described in the Pro Shop on NOICC's Web site, which has been designed for professionals like you. North Carolina SOICC's Web site, an excellent one, also features new and popular resources and workshops available here and elsewhere.

I have talked about the value of occupational and career information here in the United States and efforts of our Network to promote greater awareness and access to useful sources. Now let me move to other realms where this kind of information is gaining currency.

Over the years, our Network has attracted the attention of many countries that share our concern about economic and human resources development. In 1989, John Lawrence looked at the NOICC/SOICC model from the perspective of his work in the international development community. Dr. Lawrence had participated in early research on occupational information systems as a psychologist at Research Triangle Institute. His findings were published in the first of eight NOICC Occasional Papers, all of which are now available in our Career Development Virtual Library, developed here at UNCG by ERIC/CASS.

Dr. Lawrence focused on the developing countries in his paper. But NOICC was also beginning to work with other industrial nations. One of our longest and most fruitful collaborations has been with our next-door neighbors in Canada. This summer NOICC and the National Life/Work Centre, a

non-profit organization in Canada, signed an agreement under which we will collaborate in the development of career information and career development resources.

NOICC is already distributing a U.S. version of *The Real Game*. You'll find a description of the game and related training on the North Carolina SOICC's home page. NOICC will soon distribute the U.S. version of an adult adaptation called *Real Times/Real Life*. Our Network is also participating in the development and piloting of elementary and high school versions of the *Game*.

The Life/Work Centre has adopted our National Career Development Guidelines as a template for its career development products and will market our portfolios as soon as Canadian versions have been created. NOICC has also worked with Human Resources Development Canada, a federal agency, and the Canadian Career Development Foundation. The Foundation is currently engaged in establishing national counselor standards and creating a Canadian version of our Career Development Training Institute.

NOICC has shared the Guidelines and other materials with leaders in counseling in Japan. In October, 1997, we met with representatives working on developing a new concept of career guidance and vocational education for the Japanese Ministry of Education and received a copy of the Guidelines translated into Japanese.

On the other side of the Atlantic, NOICC has worked with agencies in Germany and Turkey on a five-year project to help the Turks improve their employment services, especially career information and counseling. We have also participated in technical assistance programs in Hungary, Poland, and the former USSR. Most recently, our staff have led a technical assistance team developing job counseling materials and training for humanitarian workers and employment service staff in

Bosnia. The materials included a Job Search Manual that "walks" unemployed Bosnians through a ten-step job hunt procedure; a Job Development Manual for employment service staff; and a Post Traumatic Stress Counseling Referral Guide for employment counselors, social workers, and others.

Let me close my remarks with six lessons drawn from the NOICC/SOICC experience that are relevant to the issues we face. I believe that for today's students and workers, *occupational and career information is a coin of the realm.* It can open up realms of opportunity and possibility, not only for earning a living but also for building a good life. Increasingly, that wealth of information is presented in computerized forms or over the Internet. To help more people benefit from new information technology, we should:

1. Provide access to computers and the Internet for everyone. Libraries, schools, and career centers are well placed, if not yet equipped, to provide this service in their communities. They can help a broader spectrum of the public take advantage of new, as well as more traditional, information resources.

2. Help professionals learn to use new information technology, especially the Internet. Many teachers and counselors don't know how these tools can help them do their jobs more effectively. The President has called on our country to make sure all our schools are wired to the Internet. That is an enormous task, but it is only the beginning of what is needed for students and staff to benefit from these resources.

3. Help people locate useful Internet resources. The Web has thousands of job and career information pages. A search for them can be overwhelming. One of the things NOICC, SOICCs, and other professional and public organizations have done is to provide Internet Gateway sites that lead their particular constituents to some good resources on the Net. Counselors and librarians can help by identifying

appropriate gateways or Web sites suited to their particular users' interests and needs.

4. Develop materials to help others use the Internet. NOICC's most popular Occasional Paper was *To Spin a Web*, a guide to job, career, and labor market information on the Internet. Counselors in newly wired schools, consumer education teachers, and workforce development offices are using it to train staff and to help students use the Web. You can find or develop useful materials for the people you serve.

5. Improve offerings on the Web by contributing your expertise and skills to develop or review content for Web sites for your own user population. One of the highly rated job search assistance sites on the Web was developed by a former university librarian, Margaret Riley. A recent e-mail note praised her site because "her librarian's skills shine through." Librarians know how to judge the substance and organize material to make it easier for clients to find what they need quickly. Many people who design Web pages could benefit from such experience.

6. Participate in developing professional standards for the information resources you use. Standards already exist but may need to be revisited and applied to some of the newer media and technology. Web sites are like electronic books; each of us chooses what we will read from the millions of books in print. We can exercise the same taste and judgment among what we will choose on the Web.

My experience working with officials from other countries has convinced me that the United States is very good at collecting workforce data, packaging it for use by various groups, and disseminating it. A great deal of useful occupational and career information is available from the public and private sectors. But we leave decisions about education and careers to individuals themselves. We may help them through the decision-making process, but we don't tell them what they have

to become. And that is why information in our realm is indeed the coin of choice.

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Chapter Four

Libraries and Librarianship in the Information Age

Doris J. Hulbert, Director
Walter Clinton Jackson Library
The University of North Carolina
at Greensboro

The Information Age, with its computers, databases, telecommunications, and Internet, has dramatically affected libraries and librarians by giving us new options and by enabling us to change the way we do things. The Information Age has not changed what we do, however.

The fundamental and enduring mission of libraries is first, to identify, acquire, organize, store, disseminate, preserve, and provide access to collections and resources in all formats; and, second, to provide services related to collections and resources and the needs of the user community. That there are new information formats and delivery systems does not change this mission. Chief among the current forces shaping libraries are technology and telecommunications. Developments in these areas make it possible to deliver information to anyone, anywhere, at anytime. Computers, databases, and networks provide speedy, relatively inexpensive, and efficient delivery of vast amounts of information which extend and enhance core library collections and services; they do not replace them.

The sheer number of electronic information resources and the different interfaces which must be mastered to access them combine to make information technology complex and confusing to us all. Knowledgeable and skilled librarians are even more essential now than they have been in the past. And when we talk about the Information Age and its effects, we need to remember that libraries are institutions that have been around for a very long time—more than 2,500 years. They

predate both books and universities. Libraries and librarians have always had to deal with changing technologies, though never at the dizzying speed that we do now. Computers and telecommunications have revolutionized information storage, access, and retrieval to the same degree that Gutenberg's printing press did, and with far more immediate and visible results.

Last year I was talking with Jackson Library staff members about change and its effects. I asked how many people had been working in the Library for five years. I then asked how many people's jobs were the same as when they started to work. One staff member blurted out, with some frustration in his voice, "Are you kidding? My job isn't the same today as it was yesterday." He wasn't referring to the core responsibilities of his job; he was talking about the essential tools for carrying out his responsibilities: the computer and the network.

During my own career, I have been part of and have led many changes in technology. Over the past decade, Jackson Library has moved from a batch-processed, punched card circulation system to our first online system in the mid-1980s; and, in the early 1990s we evolved to our current online system. This system includes all major library functions: acquisitions, cataloging, circulation, and serials. It enables users to order new books, interlibrary loans, and journal articles online, and it provides access to more than 80 databases to which the Library subscribes. It also provides access to the Internet with its global information resources. We use the World Wide Web not only to select links of value to our users, but also to create new information for them.

Why did we make these technological changes? Well, some of us thought that these changes would save us money, and some of them did. Some of us thought they would lead to efficiencies, and some of them did. All of us knew, however,

that these technologies would vastly increase our users' ability to access information.

The Library is always open now, as long as our users have networked computers and the information that they want is online.

I would venture to say that libraries, and university libraries in particular, are ahead of much of the education world in using technology to connect students and faculty with information needed. These technological changes have also contributed to building a learning environment which frees our students from the physical restraints of time and place. Six hundred thousand people passed through our doors last year, but our Web pages were visited more than 2,100,000 times.

Now, what does this mean for the preparation of future and present librarians?

I'll leave matters of curriculum design to the faculty and students of UNCG's Library and Information Studies Department, but I will tell you the kinds of knowledge and skills I think librarians need. I would add that I think this learning MUST be continual and that it MAY occur in the classroom, in the field, online, at a distance, at conferences, or in workshops.

First, those fundamental library functions I mentioned earlier—selecting and acquiring, organizing and describing, interpreting, disseminating, storing and preserving—are more important now than ever before because of the amount of information available. The Internet has been described as having two trillion bytes of information; the Library of Congress, as having 20 trillion bytes of information. BUT, the rate of change on the Internet is astronomical AND the Library of Congress is organized. It's interesting to note that the first two staff members hired by the young geniuses who created YAHOO were catalogers.

Our print-based models for information are mature. Authors write, writers, editors or referees select and edit, publishers distribute, a book or article appears, and it remains fixed.

In the Information Age, unknown, uncredentialed authors publish at will on the Web, and the wonderful coexists with the terrible. It's the old "Nobody knows you're a dog on the Internet" cartoon. Wouldn't it be great if we had URL's which ended with ".dog" or ".nut"? This designation could go a long way in helping students and educators separate fact from fantasy and fanaticism.

Second, we need to learn how to manage change. We MUST learn to live with it; perhaps learn to lead it; and certainly learn to leverage it to take advantage of its opportunities for developing rich, interactive learning communities and expanding users' access to information.

We need to recognize that technology, collaboration, and dependency on people and networks beyond our control for carrying out essential library functions can breed frustration, stress, and conflict. We need to learn about conflict resolution and consensus-building and working on teams with other information professionals.

We need to learn how to supervise, manage, and motivate staff to encourage continual learning and development so that change is less stressful. We need to learn what to do when confronted by obstructionists when "remedial removal" is not an option. Most people who work in libraries are very committed and very good at what they do. But, the better people are at what they do, the more difficult it may be to get them to change. So, we need to be patient and persistent and to have the wisdom to know when to be which.

Third, and while we are learning to manage change, we need to learn how to be agents of change. Information

technologies are in their infancy, and we need to be actively involved in developing standards and establishing criteria for information policy, intellectual property rights, censorship and filters, and archiving electronic information.

We need to be, as we always have been, articulate spokespeople for the information "have nots." The computer-dependent Information Age will surely widen the gap between the "haves" and the "have nots."

We need to learn how to gather data and prepare reports and presentations to demonstrate accountability and progress and make a case for sufficient funding. We need to learn how to market ourselves so people know what we have to offer. I find the idea that our value is self-evident to be misguided, at best, in a highly competitive funding environment. We can't sit back and expect people to come to us when a world of information is available at their fingertips. We need to engage in "push technology" of our own by being aggressive interventionists.

And last but not least, we need to learn something about computers, networks, and systems to survive. We certainly need microcomputer skills to manipulate text and images and create Web pages and an understanding of how to do basic troubleshooting when things go wrong. Our IDEAL might be to have sufficient and timely technical support when we WANT it. All too often the ideal may be timely and sufficient technical support when we NEED it. Front-line technical support for complicated systems depending on local and remote networks seems to be in short supply, right now, and I think we have to count on building our own minimal base of support in libraries, perhaps by enlisting students, who may be well ahead of many staff members. But this is certainly the area in which collaboration must take place to avoid costly duplication of staff and equipment.

I'll leave you with a challenge. Carlos Fuentes said, "The great crisis facing modern civilization is going to be how to transform information into structured resources." All of us need to accept this challenge so that our students are not in danger of being overwhelmed by information which they do not know how to use.

Chapter Five

Teaching, Learning, Technology and Higher Education

A. Edward Uprichard, Provost
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at Greensboro

Good afternoon, it is a pleasu re to have an opportunity to share some time with you and t o learn about some of your ideas relative to information tech nology and learning. I must confess that for me technology represents an "approach - avoidance" conflict. On the one h and, I am very excited about the use of technology and its pote ntial for enhancing learning. On the other hand, I am very cor cerned about costs.

How effective is instruction al technology in enhancing learning? Is it worth the financial investment? About a month ago at a Deans Council meeting the group was discussing an agenda item related to technolog y, more specifically, the need for additional multimedia clas srooms. One of the deans indicated that he recently atte nded a seminar where the presenters were using technology In the first seminar session the dean was very impressed with the PowerPoint presentation. In the second session he thought the PowerPoint presentation was interesting or okay. By the t hird session the PowerPoint presentation was putting him to sleep! There is a lesson to be learned here.

I'm sure last night and earli er today you have had some rich discussions relative to inf ormation and instructional technology and its impact on e ducational institutions at all levels. There is little doubt tha t it is an exciting time for institutions of higher education. C hange is in the air at campuses across the United States, especi ally at doctoral and research

institutions. The leadership in institutions of higher education realizes that "unless public colleges and universities become the architects of change, they will be its victims." (*Transformational Change in Higher Education,* Kellogg Commission Press Release, April 2, 1997)

Challenges in higher education abound! They include: (a) faculty roles, responsibilities, and rewards; (b) review and assessment of general education requirements; (c) legislative calls for accountability and relevance of faculty work; (d) internationalizing the curriculum; (e) building diversity within the university; building community; (f) outreach activities, including building partnerships with the public and private sectors; and (g) transforming the university to a learning organization or community.

Transforming the university to a learning organization or community may be the most difficult challenge. The two developments most directly influencing this transformation for both faculty and students are: (a) the paradigm shift from teaching to learning, and (b) the use of technology.

Let me try to succinctly describe what I believe to be some of the characteristics of a learning organization:

- A learning organization is learner - centered, is flexible, embraces new ideas, and is open to change.
- It is comprised of learners who are actively involved in discovering and constructing knowledge in order to achieve desired goals or outcomes.
- Members of the organization are life-long learners, sharers and carers who are committed to continuous improvement.
- Learners understand their responsibilities and expectations whether engaged in individual learning environments or group learning environments.

- Assessment and/or research data, quantitative or qualitative, influence thoughts, behavior,and directions.
- Reflective thinking results in learning.

The University as a learning organization or community is an important topic within many professional organizations. For example, this concept is central to the work that the National Association State Universities and Land Grant Colleges (NASULGC) is doing with the Kellogg Commission. This particular work is focused on the changes that must occur in higher education if colleges and universities are to maintain public trust and confidence. Also, the theme of the national meeting of the American Association of Higher Education is "Taking Learning Seriously."

These organizations, and many others, know that if a university is to become a learning organization or community, changes must occur in the teaching-learning enterprise, the heart of every university. Further, they recognize that the role of technology must be clearly defined within any plan for improving or enhancing learning on campuses.

In transforming a University to a learning organization, one needs to be clear to differentiate between the dog and the tail. The dog has to be the teaching-learning enterprise and the tail, technology. A university where the tail is wagging the dog is a university in trouble. Unfortunately, too often, "techies" without appropriate input from faculty develop university technology plans. Further, they are developed in the absence of a plan to improve teaching and learning. This type technology plan can result in an expensive state-of-the-art technology campus but with little change occurring in student learning.

To make sure that this latter situation does not occur at UNCG, we have just established a Teaching, Learning Technology Roundtable, a concept developed by the American

Association of Higher Education. The membership of the Roundtable is comprised primarily of faculty, but it also includes staff from all areas and divisions across campus. It will be co-chaired by the Director of the University Teaching and Learning Center and the director of the Library. The major charge of the Roundtable is to develop a plan for enhancing learning at UNCG.

The first task of the Roundtable is to develop a vision for teaching and learning at UNCG, including the role of instructional technology. I'm hoping this vision can reflect a paradigm shift from teaching to learning.

What does this paradigm shift mean to a university? Robert Barr and John Tagg (1995, *Change Magazine*) compare and contrast sets of expectations for the teaching paradigm and learning paradigm within categories such as mission and purposes, criteria for success, teaching/learning structures, and productivity/funding.

In the teaching paradigm expectations are: (a) to provide/deliver instruction, (b) to transfer knowledge from faculty to students, (c) to offer courses and programs, and (d) to improve the quality of instruction. Success is defined in terms of inputs and resources, productivity in terms of costs per hour of instruction per student and funding for hours of instruction. In contrast, the expectations for the learning paradigm are: (a) to produce learning, (b) to elicit student discovery and construction of knowledge, (c) to create powerful learning environments, and (d) to improve the quality of learning. Success is defined in terms of learning or student outcomes, productivity in terms of cost per unit of learning per student and funding for learning outcomes.

What is the vision for teaching and learning at UNCG?

What kinds of learning environments do we expect our students to experience before they graduate?

What competencies do faculty and students need to function effectively in specific learning environments?

What are the staff development needs of faculty relative to designing and implementing learning environments?

What technology infrastructure is needed for specific learning environments?

What technical support or other support is needed to sustain specific learning environments?

How will learning environments be accessed relative to student learning?

Who will provide the leadership for change on campus?

Answers to these and similar questions will help define the type of learning organization or community UNCG is or aspires to become. It will also help us make wise decisions about investments in technology infrastructure (hardware and software) and in professional development of faculty.

I am very excited about instructional technology/information technology and its potential for enhancing and improving learning. I am not very excited about technology for technology's sake.

Chapter Six

A Summing Up and a Look to the Future

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98

As an ERIC clearinghouse we have been enthusiastically and sometimes frustratingly grappling with the challenge of how we can use the new electronic tools, i.e., the Internet, to better serve the large body of persons interested in counseling relevant information. This is a very large body of persons ranging from those interested in career planning, counseling outcomes research or what makes for an effective school guidance program. Our user clientele is an interesting admixture of new and seasoned professional counseling types as well as parents and students unfamiliar with counseling terminology, but highly desirous of using it for the betterment of themselves or their families or in their work. It has been our challenge to develop procedures and resources which would make the new electronic tools a help rather than a hindrance. In some ways, we have been a microcosm of the very challenging situations which will be faced by counselors as they more fully move into the information age. Hopefully, because we have had to grapple early on with the challenge of the Internet, we can be helpful to them in being effective rather than reluctant users of the Net.

Reinforcing the need for a conference on the impact of the Internet on education and learning has been our observation that other non classroom school specialists, such as librarians, and media and AV personnel, are facing some of the same challenges to their role and function as counselors are. Typically,

however, the communication across specialties has been minimal with relatively little attention being given to sharing successful use strategies or determining how they could work together and learn from one another. In the case of librarians and counselors, it seems particularly striking how much they share similar goals, e.g., assisting persons to more effectively cope with daily challenges through more effective use of information resources.

Our thought was that a small, invitational conference focusing on the three main non classroom specialists most concerned with student learning and development—counselors, librarians and AV specialists—would be a useful launching pad for exploring how collaboration between the specialists could be expanded and improved. The response to this conference was enthusiastic. Those who attended were to a very large degree pleased with the conference expertise and excited about the possibilities it offered for expanding collaboration among the helping specialties.

However satisfying a conference may be to those who attend, there is still a need to share to the extent possible what went on in the conference and what were the significant learnings and outcomes so that those not fortunate enough to attend can still benefit from the experience. The papers in this monograph are an attempt to do just that - be a follow-up reference for those at the conference and an exposure to the new ideas presented at the conference for those who were not present.

A conference also provides a special window that allows us to see how the new concepts are received, what flies (and what crashes!), and what the future holds for the challenges posed by the conference.

The following are a few observations as to what was learned when a group of knowledgeable personnel representing

counseling, librarianship, and audio visual services met together and discussed how the three specialists could collaborate to enhance student learning in the information age. It is by no means a definitive list—only a beginning intended to tweak peoples' interest.

1. Collaboration is an easy sell-everyone is for it and sees rich rewards from doing it. The problem is that there does not seem to be a common understanding of what it is. Nor do professionals representing different specialties seem interested in developing a collaborative mindset. In discussions about collaboration, there is flirting with the notion of collaboration, then a rather rapid movement to a specialist's point of view. It would appear that for many, the idea of collaboration is for a particular specialty to find ways it can be improved and, by improving itself, thereby contribute to the overall collaboration effort. Rare indeed is the individual whose mindset is "how can we reconfigure our work as collaborative specialists with the net effect to improve service to clients."

2. Educators, when speaking of the Internet, are both more comfortable with and more likely to discuss the matters relating to hardware, e.g., computers, modems and types of search engines used, than matters relating to change in roles, requisite training needed, effective programs designs, etc. Even though the persons involved are not "high tech" persons, they clearly shy away from focusing on the human rather that the hardware issues.

3. There is an inclination for the specialists involved to see the Internet and other electronic tools as *their* resources rather than their clients, e.g., students, adult learners, etc. The Internet is frequently seen as a vast reservoir of information which the specialists, I.e., experts can use rather than an enormous resource for the learners of all ages. Interestingly, few of the discussions relate to how an informed and self-

managed body of students and learners who are preparing themselves through their own self-directed use of the Internet can become a type of "instant expert" on topics of interest to them (the learner). Of even greater importance is the highly significant challenge this enhanced capacity for self-learning makes for educators and counselors who must respond to a better informed and more self directed learner.

4. There is clear agreement for the need to prepare learners to be discerning and judicious users of the Internet, but little discussion as to what constitutes a "discerning user" or how to prepare such a user. This appears to be more of a topic featured by the popular media, e.g., newspaper Sunday supplements, etc., than it does professional sources. Perhaps this is once again an example of professional lag where the popular media knows better than the "experts" what people need and want.

5. A particular promising approach for promoting interprofessional collaboration is the use of electronic networking (listservs, chat boxes), where particular topics are discussed without reference as to *who is communicating what*. This approach minimize the usual screening by professionals of *who* is speaking and focuses attention on the *content* of the message. Since getting specialists of different persuasions to discuss is a difficult enough task in itself, this approach has much to offer.

It is our hope that the conference and/or this publication will stimulate your interest and encouraged your reflection on how best to proceed. If you desire to share ideas or thoughts, we would welcome hearing from you. Contact me at:

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ERIC and ERIC/CASS Resources

About ERIC and ERIC/CASS

ERIC/CASS (originally ERIC/CAPS) was one of the original Clearinghouses which formed the Educational Resources Information Center (ERIC) in 1966. ERIC has since grown to be the world's largest educational data base with nearly one million entrees.

The ERIC system has as its mission to improve American education by increasing and facilitating the use of educational research and information on practice in the activities of learning, teaching, educational decision-making, and research, wherever and whenever these activities take place.

ERIC is made up of sixteen separate Clearinghouses, each of which has a specific focus. The ERIC Counseling & Student Services Clearinghouse (ERIC/CASS) has its major foci serving the needs and interests of care givers and helping specialists such as counselors, therapists, career specialists, etc., at all ages and educational levels and in all settings—school, college, government, business and private practice.

Our basic goal has been to improve decision making through increased access to information. More importantly, we strive through the many resources and services we offer, to empower our users to more fully realize their goals and — yes—their dreams as well!

ERIC/CASS Website

University of North Carolina at Greensboro
School of Education
201 Ferguson Building UNCG
Greensboro, NC 27402-6171
http://www.uncg.edu/edu/ericcass

One of the best sources of educational information is ERIC— the Educational Resources Information Center. An appropriate first step in gaining access to ERIC is to locate the ERIC/CASS Website and through it identify a multitude of educational resources. Numerous "hotlinks" to other databases and websites can also be reached through the ERIC/CASS Website.

Through ERIC/CASS, the U.S. Department of Education's extensive educational resources can be accessed as well as special services of the ERIC system (AskERIC, Access ERIC and other ERIC Clearinghouses). Among the specific resources available on the ERIC/CASS Website are:

- Search capability of the ERIC database through the U.S. Department of Education
- Information on forthcoming ERIC/CASS Listservs
- Full text ERIC/CASS Digests
- Information on forthcoming conferences and workshops
- Shopping mall of publications and resources

For more information on ERIC/CASS, call (336) 334-4114, FAX (336) 334-4116, e-mail: ericcass@uncg.edu, or access the ERIC/CASS Homepage at:

http://www.uncg.edu/edu/ericcass

Virtual Library URL's

ERIC/CASS Virtual Libraries
http://www.uncg.edu/~ericcas2

- **Career Development**
  http://www.uncg.edu/edu/ericcass/career/index.htm

- **Cultural Diversity**
  http://www.uncg.edu/edu/ericcass/diverse/index.htm

- **School-To-Work Transition**
  http://www.uncg.edu/edu/ericcass/stw_tran/index.htm

- **School Violence**
  http://www.uncg.edu/edu/ericcass/violence/index.htm

- **Student Learning and Achievement**
  http://www.uncg.edu/edu/ericcass/achieve/index.html

- **Substance Abuse**
  http://www.uncg.edu/edu/ericcass/substnce/index.htm

Notes and Personal Reactions

The ERIC Clearinghouse on Counseling and Student Services (ERIC/CASS) has developed a series of online virtual libraries. Each virtual library is designed to provide users with online access to an extensive array of full-text documents on a topic of current high interest and/or critical concern. To make the libraries easy to search, documents are cross referenced and can be accessed through four different categories: Subject Area, Population, Resources for Parents, and NOICC Resources. The URLs for the libraries are:

CAREER DEVELOPMENT
http://www.uncg.edu/edu/ericcass/career/index.htm

CULTURAL DIVERSITY
http://www.uncg.edu/edu/ericcass/diverse/index.htm

SCHOOL TO WORK
http://www.uncg.edu/edu/ericcass/stw_tran/index.htm

SCHOOL VIOLENCE
http://www.uncg.edu/edu/ericcass/violence/index.htm

STUDENT ACHIEVEMENT
http://www.uncg.edu/edu/ericcass/achieve/index.htm

SUBSTANCE ABUSE
http://www.uncg.edu/edu/ericcass/substnce/index.htm

ERIC/CASS is collecting and organizing resources for six more virtual libraries to be ready for public access by June 1998. They include:

Conflict Resolution	Depression and Suicide
Gangs	Bullying
Juvenile Boot Camps	Assessment in Counseling and Therapy

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